

The track of the central eclipse between 9<sup>h</sup> 45<sup>m</sup> and 10<sup>h</sup> 0<sup>m</sup> Greenwich mean time is as follows:—

Greenwich M.T.	Long. W.	Lat. N.	Duration of Totality on Central Line	Sun's Altitude
h m	° ′ ″	° ′ ″	m s	°
9 45°0	124 21°7	38 44°6	2 4°1	25°5
9 47°5	122 56°4	39 11°7	2 1°3	24°5
9 50°0	121 25°9	39 42°5	1 58°1	23°3
9 52°5	119 49°3	40 17°7	1 54°6	22°0
9 55°0	118 48°	40 58°3	1 50°9	20°6
9 57°5	116 9°7	41 45°6	1 46°9	19°0
10 0°0	114 0°5	42 41°2	1 42°7	17°1

*The Opposition of Sappho* (80) in 1888.

By Robert Bryant, B.A., B.Sc.

This planet comes into opposition in longitude about 1888, April 12. The usual opportunity will then be afforded for obtaining the observations requisite for the correction of the elements of the planet's orbit. And that these observations should be made seems highly desirable for two reasons. Firstly, the observations of this planet between the years 1872 and 1882 were very few, so that this somewhat long neglect of the planet strengthens its claim for re-observation; and secondly, in August and September 1889 the planet makes one of those near approaches to the Earth which, on account of the eccentricity of its orbit and the near commensurability of its period with that of the Earth, occur every seven years.

For this purpose the following ephemeris for Greenwich midnight has been prepared, to which is added a suitable list of comparison stars, of which observers are requested to make use.

Observers using the transit instrument for observation of the planet may also be able to observe the corresponding comparison star.

8 in Longitude, 1888, April 11°7.

Magnitude 11.

Greenwich. Midnight. 1888.	Right Ascension.	Declination.	Log Δ.	Aberration.	Comp. Star.
Mar. 27	13 34 19°00	-14 26 34°7	0.23956	14 24	21
28	13 30°18	-14 19 51°0			20
29	13 40°47	-14 12 58°3	0.23677	14 19	20
30	13 49°93	-14 5 56°5			19
31	13 58°61	-13 58 45°9	0.23425	14 14	19
April 1	13 6°57	-13 51 26°9			18

Jan. 1888.

of *Sappho* (80) in 1888.

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Greenwich. Midnight. 1888.	Right Ascension. h m s	Declination. ° ' "	Log Δ.	Aberration. m s	Comp. Star.
April 2	13 29 13.87	-13 43 59.9	0.23198	14 10	17
3	28 20.56	-13 36 25.1			17
4	27 26.71	-13 28 42.9	0.23001	14 5	14
5	26 32.38	-13 20 53.7			14
6	25 37.63	-13 12 57.8	0.22830	14 2	16
7	24 42.53	-13 4 55.7			16
8	23 47.13	-12 56 47.8	0.22688	13 59	15
9	22 51.51	-12 48 34.5			15
10	21 55.72	-12 40 16.3	0.22577	13 57	13
11	20 59.85	-12 31 53.6			13
12	20 3.96	-12 23 27.0	0.22494	13 56	12
13	19 8.12	-12 14 57.0			11
14	18 12.40	-12 6 24.0	0.22441	13 55	10, 11
15	17 16.87	-11 57 48.6			10
16	16 21.58	-11 49 11.2	0.22419	13 54	9
17	15 26.61	-11 40 32.5			9
18	14 32.01	-11 31 52.9	0.22426	13 54	8
19	13 37.85	-11 23 12.9			8
20	12 44.18	-11 14 33.0	0.22462	13 55	6
21	11 51.07	-11 5 53.7			6
22	10 58.57	-10 57 15.5	0.22528	13 57	7
23	10 6.75	-10 48 28.9			7
24	9 15.63	-10 40 4.3	0.22622	13 58	5
25	8 25.30	-10 31 32.4			4, 5
26	7 35.78	-10 23 3.4	0.22743	14 0	4
27	6 47.14	-10 14 38.0			2
28	5 59.41	-10 6 16.4	0.22492	14 3	1, 2
29	5 12.66	-9 57 59.1			3
30	13 4 26.91	-9 49 46.6	0.23066	14 7	3

## Comparison Stars.

No.	Mag.	R.A. 1888°.	δ 1888°.	Authority.	Date for use.
		h m s	° ' "		
1	5.8	13 2 1.40	-10 8 24.0	B.A. Cat. Lamont	Apr. 28
2	8.3	4 39.95	-10 13 0.7	Santini	27, 28
3	8.0	5 28	-9 54.7	D.M. -9° 3641	29, 30
4	9.6	8 52.13	-10 25 18.4	Lamont	25, 26
5	8.7	10 3.98	-10 38 50.2	Paris, 1882	24, 25
6	8.7	10 56.99	-11 10 39.0	Weisse, Santini	20, 21

No.	Mag.	R.A. 1888° h m s	δ 1888° ° ' "	Authority.	Date for use.
7	6.7	13 11 28.86	-10 53 35.0	Gould's Cat.	22, 23
8	7.5	12 56.35	-11 25 30.0	Weisse, Santini	18, 19
9	9.2	14 28	-11 46.7	D.M. -11° 3493	16, 17
10	7	16 12.96	-11 59 32.0	Gould, Paris, 1870	14, 15
11	5	20 48.35	-12 7 27.8	Gould, Yarn. ( <i>i Virginis</i> )	13, 14
12	9.0	21 32.25	-12 23 25.5	Santini, Lamont	12
13	9.5	21 35	-12 35.5	D.M. -12° 3819	10, 11
14	8.7	24 0.46	-13 25 21.0	Weisse, Santini, Lamont	4.5
15	7	25 16.70	-12 52 15.0	Gould, Paris, 1870	8, 9
16	9.7	25 47	-13 8.6	D.M. -12° 3834	6, 7
17	8.9	27 26.12	-13 40 13.5	Weisse, Santini	2.3
18	9.5	31 26	-13 51.6	D.M. -13° 3733	1
19	7.8	32 1.61	-14 1 16.2	Paris, 1855, 1879	Mar. 30, 31
20	9.2	32 26	-14 16.6	D.M. -14° 3763	28, 29
21	8	13 36 52.78	-14 28 7.8	Paris, 1882, 1883	27

*Precession for 1888° of the above stars.*

No.	Prec. R.A.	Prec. δ.	No.	Prec. R.A.	Prec. δ.
	h m s	° ' "		h m s	° ' "
1	+3.135	-19.32	12	+3.174	-18.79
2	+3.139	-19.26	13	+3.175	-18.79
3	+3.137	-19.24	14	+3.186	-18.72
4	+3.144	-19.15	15	+3.182	-18.68
5	+3.147	-19.12	16	+3.185	-18.66
6	+3.152	-19.10	17	+3.192	-18.61
7	+3.150	-19.08	18	+3.199	-18.47
8	+3.156	-19.04	19	+3.202	-18.46
9	+3.160	-19.00	20	+3.205	-18.44
10	+3.164	-18.95	21	+3.213	-18.29
11	+3.170	-18.82			

Observers are requested to publish their observations as early as possible, so that the final corrections of the assumed elements of the planet's orbit may be obtained.

*On the Cross Reticule. By G. L. Tupman.*

Of the various devices for utilising the diurnal motion of the Earth for micrometric measurements, without the aid of artificial light, a reticule of two straight, stout wires or bars crossing each other at right angles at the centre of the field,